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The Timber Industry Perspective: TMDLs and Forestry, Trying to Make a Square Peg Round

Brian Sugden

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I think I bring a little bit different perspective to this conference today in that I come from the perspective of having to really take a look at the law, understand it and think about really how to advise Plum Creek Timber in how they can ensure compliance with the law In addition, I bring the perspective of trying to understand many of the technical issues involved, and I have been thinking a lot the last few years about how TMDLs can be made to work for nonpoint sources in forestry, and that is a little bit of what I want to share today

I guess before I get started, does everyone know what TMDL stands for? Too many damn lawyers. I figured there were enough non-attorneys in the room today that some of you might laugh.

Well, the discussion topics today include briefly discussing treatment of nonpoint sources under the Federal Clean Water Act.[1] This has been touched on extensively by Mr. Bloomquist. I want to just add a couple other points to that and provide a little bit of history on Montana's program for dealing with nonpoint source pollution from forestry activities. I think that historical context is important in thinking about where we go from this point forward.

I will briefly touch on Montana's TMDL legislation passed by the 1997 Legislature.[2] Then I will speak about the EPA's TMDL rules that were proposed in August of 1999,[3] which had the potential to very greatly affect the forestry community TMDLs and forestry, or TMDLs for forestry, is kind of the square-peg concept. Lastly, I will share with you a little bit of the work that we have been doing recently on upper Lolo Creek, where we have been trying to kind of dissect the TMDL issue and think about how it can be made to work with nonpoint source forestry issues.

As Mr. Bloomquist mentioned, the 1987 amendments to the Federal Clean Water Act greatly clarified what the obligation was for nonpoint

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1. 33 U.S.C. §§ 1251–1387 (1994).

2. H.R. 546, 55th Leg. (Mont. 1997) (amending Mont. Code Ann. § 75-5-103).

3. Proposed Revisions to the Water Quality Planning and Management Regulation; Proposed Rule, 64 Fed. Reg. 46012, 46033 (Aug. 23, 1999); *see also* Final TMDL Rules, 65 Fed. Reg. at 43600.

sources.[4] Basically that section of the Clean Water Act stated that the state must assess water bodies for nonpoint source impacts, and that they then had to develop a nonpoint source management plan. I believe the first one of these was created in the late 1980s. The last one was created in 1991, and that is in the process of being updated at present, and the new version of that is actually out for public comment right now, if you are interested. It requires that the state implement their plan, and monitor and periodically report progress to EPA. This section of the Clean Water Act is really what frames up the obligation for nonpoint sources of pollution.

In my reading of the Clean Water Act, as a non-attorney, I read Section 303[5] and immediately noticed the title of that section is "Effluent Limitations." I quickly noticed also that nowhere in that whole section of the Act is nonpoint sources even mentioned. That is very much the position of the forest industry — that the EPA has really tried to leverage that section of the Clean Water Act to get their hands into nonpoint source management and into something that, according to Section 319,[6] is very much left to the states to address.

As to the history of forest practices or forest practice-related legislation in Montana, there were numerous attempts to pass a statewide forest practices act in the 1970s and 1980s. Throughout the western United States many states in the early 1970s did pass comprehensive state forest practices acts, probably in response to the original Clean Water Act legislation in 1972 and some of the 208[7] planning processes that Mr. Bloomquist mentioned.

Montana debated those proposals and there were no forest practices acts passed. However, I should mention that actually the forest products industry was supportive of some of those forest practices acts, but private property interests and small private landowners killed those legislative attempts.

A lot of this pressure to pass a statewide forest practices act ultimately led the 1987 Legislature to pass House Joint Resolution 49.[8] This directed the Environmental Quality Council, or EQC, to examine how forest practices are affecting watersheds in Montana, to evaluate the many management practices that have proven effective for controlling forestry pollution, and really provided opportunity for improvement and recommendations on

4. *See* 33 U.S.C. § 1329 (1994 & Supp. V 1999).

5. 33 U.S.C. § 1312 (1994).

6. 33 U.S.C. § 1329 (1994 & Supp. V 1999).

7. 33 U.S.C. § 1208 (1994).

8. H.J.R. 49, 50th Leg. (Mont. 1987).

options for how the State can move forward with forestry-related regulation.

Well, as an outcome of that study, the EQC document published in 1989, or it might have been in late 1988, had a number of findings. The first thing that EQC did was conduct the first statewide sampling of Best Management Practices, or BMPs, implementation on forest lands. I will present the reported findings generated by that process in just a moment.

Second, this report listed options for the State program, from a purely voluntary system, all of the way up to a mandated forest practices act and kind of all of the combinations in between. Initially, that report made recommendations on a set of statewide BMPs for forestry, which ultimately became incorporated into the State's nonpoint source plan in 1989. Those BMPs were developed by a BMP working group that included a very diverse group of interests during the EQC study. The BMPs were recommended to EQC and ultimately adopted by the State in 1989. That was, again, the first statewide set of forestry BMPs.

Another outgrowth of the EQC study was that EQC recommended that the Legislature pass legislation to basically require landowners to notify the State when they were going to undertake a forest management activity. There are a couple of reasons for this. One is related to slash management abatement. Another was really for the State to just understand what was going on throughout the State from a harvesting standpoint, and provide a mechanism to get information to the landowners about the forestry BMPs. That BMP notification law was passed by the 1989 Legislature.

Lastly, and not exactly related to that EQC study but ultimately a kind of the outgrowth of this study, the 1991 Legislature passed the Streamside Management Act,[9] which regulated forestry activities around water sources throughout Montana.

So I'll talk a little bit about Montana's forestry BMPs. Again, the State BMPs were finalized in 1989. They were updated in 1997.[10] The State DNRC, Department of Natural Resources and Conservation, is kind of the lead agency in coordinating with the BMP work group for updates to the BMPs.

As I mentioned earlier, the BMPs are part of the State's nonpoint source management plan. BMPs relate to things like roads in terms of road construction, road planning, road drainage design, road maintenance and so forth. Remember, twelve BMPs concern harvesting in terms of minimizing soil disturbance through compaction and using suitable logging systems and

9. Mont. Code Ann. § 77-5-301 to -307 (2001).

10. Best Management Practices for Forestry in Montana, Montana Department of Natural Resources and Conservation, December 1997.

so forth. A number of BMPs are specifically related to stream crossings on forest roads and how to manage road drainage around streams to minimize impacts. And lastly, a number of BMPs concern site preparation following harvesting.

So, how has the forest industry done in Montana in terms of compliance with the BMPs? Well, they have determined these through a series of biannual audits that have been conducted since the 1988 audit by EQC. The audits that have been undertaken have used an interdisciplinary team approach where there is a forester, a road engineer, a soil scientist, a hydrologist, a fisheries biologist and then someone from the conservation community. And there are anywhere from three to four teams distributed throughout the state.

These audits have randomly sampled some higher risk forest practices in terms of harvest. So they preferentially selected steeper ground, preferentially selected harvests that were done by ground-based machinery, and preferentially selected sites for auditing that were immediately adjacent to streams. Those high-risk sites were stratified geographically and by ownership category, and again, this has been done biannually since 1988.

So how has the BMP program done? Well, these are really the long-term trends that we have for BMP application statewide since 1988. I included the 1988 audit on the slide. The original EQC audit was done slightly different than the audits since 1990. But it generally shows that compliance in the late 1980s was around 80 percent, and over the past four years the statewide average has been up around 95 percent.[11]

Not only have these audit teams evaluated BMP implementation or application, but they have also qualitatively examined BMP effectiveness, and there are similar data that look at effectiveness rates. What we consistently see is that when BMPs are applied, they are in fact effective at preventing gully erosion and sediment delivery to streams.

How did the forest industry do this statewide? Well, plain and simply, it is education – landowner and logger education. There have been a variety of entities that have been leaders in that statewide. The Montana Logging Association, which is kind of a state association for the logging contractors, has held workshops over the last decade educating their members on BMPs and requirements of the State Streamside Management Zone, or SMZ, laws.[12]

In the past few years, the Montana Logging Association has been teaming up with the Department of Natural Resources and Conservation, or

11. Montana Forestry Best Management Practices Monitoring, 2000 Forestry BMP Audit Report, Montana Department of Natural Resources and Conservation.

12. Mont. Code Ann. § 77-5-301 to -307 (2001).

DNRC, on a series of educational workshops, and they reach about 400 loggers annually.[13] To date they have reached about three-quarters of the logging companies that are involved with about three-quarters of the harvesting throughout the state.

The other entity is the Montana State University extension forester, Bob Logan, here at the University of Montana. They have created the illustrated guide to the forestry BMPs and also spearheaded the Montana Forest Stewardship Program, which has reached many non-industrial private landowners statewide. In fact, since the inception of that program, they have had stewardship plans written on about 700,000 acres of Montana forest land, or about a quarter of the private forest land statewide.

Montana DNRC has been a key leader in the education efforts through providing BMP information packets to landowners when they notify the Department of pending harvest operations. They have also been key in the logger and landowner workshops.

Lastly, I mentioned that there are a series of regional forestry expos that occur throughout the state every year that are more family targeted and describe kind of a holistic approach to forestry. They emphasize water quality, BMPs, wildlife, recreation and provide a good way to get to folks that are not normally exposed to these other education sources.

The Montana Streamside Management Act[14] passed by the 1991 Legislature was also very significant statewide in changing forest practices. I have included a handout of Senate Bill 731, which enacted this legislation. It only affects commercial timber harvesting. The rules that were adopted pursuant to this were implemented in March of 1993. Since the enactment of this law, Montana has had a very static program. The forestry program really has not changed dramatically in the last decade, and we have seen increasing trends in compliance.

The forest industry really takes a lot of pride in the track record that we have had in implementing the BMPs. It is that demonstrated track record that has really precluded any chance of additional forest practice regulation during the last five legislative sessions.

It has been, I guess, a little bit of a carrot and a stick. You know, the logging community and the forest landowners have really embraced BMPs because they make good sense. You know, we all fish. It just makes common sense to keep sediment out of streams. There has also been a stick in terms of the SMZ law, and the threat of additional regulation, that has really, I think, led to the improving trend.

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13. *See, e.g.*, Montana Guide to the Streamside Management Zone Law and Rules, Montana Department of Natural Resources and Conservation.

14. Mont. Code Ann. § 77-5-301 to -307 (2001).

Finally, the SMZ law regulates a 50 to 100-foot zone around all streams, no matter how skinny. The prohibitions within this area include no clear-cutting, broadcast burning of roads except across the stream, equipment operated during harvesting or any hazardous chemical application.

Well, moving on to TMDL litigation. While I learned from Mr. Tuholske this morning that a lot of this TMDL legislation dates back to the mid-1980s, it was really a lawsuit in a neighboring state that was kind of the wake-up call for the forest industry in Montana. This was the *Idaho Sportsmen Coalition, et al. v. Browner*[15] lawsuit that was filed over in Idaho in 1993.

The gist of that lawsuit was basically an argument that the State had not looked at all of the data that they compiled on their TMDL list, and that the pace of TMDL drafting and implementation had not been fast enough – similar to the Montana TMDL lawsuit. Idaho and EPA lost on that, and our perception of the reason why was that the State of Idaho had no process for really dealing with TMDLs. It was not mentioned in the State statute, and they just had not even thought about it.

When we saw what was going on over in Idaho in 1995 and 1996, it was a real wake-up call that it was just a matter of time before a similar lawsuit was filed in Montana. The State had a window of opportunity to really get the house in order and frame up the State's TMDL program, since until 1997, the State really had no program for dealing with impaired waters.

At the same time we had a lot of concern with the existing TMDL list in the state. There were a couple of different times where I had requested information from the State in terms of what their justification was for listing certain waters, and the basic reply was they could not provide it to me. That caused a lot of concern that the list may not be based on the best science.

So as kind of an outgrowth of that, in about mid-1996 the forest industry and other agriculture industries in the state urged the Governor and DEQ to really frame up the State's program and submit it to the 1997 Legislature. DEQ did that. They tried to engage folks from various constituencies in the planning process leading up to the 1997 Legislature. All constituency groups were invited to attend. However, the environmental groups elected not to. And it was shortly after DEQ announced its effort to move forward on this legislation that the 60-day notice was filed on that lawsuit.

So that led to House Bill 546, which was the State trying to maintain control or to really determine its own future regarding TMDLs.[16] House

15. 951 F. Supp. 962 (W.D. Wash. 1996).

16. H.B. 546, 55th Leg. (Mont. 1997) (amending Mont. Code Ann. § 75-5-103).

Bill 546 is really the what, when, where and who of TMDLs in Montana; things that Idaho had not figured out, and which really hurt them. It includes: procedures for 303(d) listing and de-listing; TMDL prioritization and the schedule, all of which Mr. Compton spoke about; the requirement to engage local watershed landowners and interest groups as the TMDL is created; and it created a statewide TMDL advisory group to advise DEQ on certain aspects of the TMDL program, including prioritization.

Maybe most importantly, regarding implementation, House Bill 546 really laid the ground rules in terms of what is the outcome of a TMDL, and for nonpoint sources it is very much a voluntary program for bringing the water body into compliance consistent with the State's existing nonpoint source management plan.

That is all I had to say regarding the State legislation. I'll move into EPA's TMDL proposals which were published in the Federal Register on August 23, 1999.[17] They proposed some pretty significant revisions to the Federal TMDL regulations. Some of these changes were an outgrowth of the Federal Advisory Committee Act on TMDLs, or the FACA on TMDLs, which had taken place over about a two or three-year period prior to 1999.[18] The keynote speaker this evening, Ms. Bell, was part of the advisory committee, and in our viewpoint EPA was very selective in what they extracted from the FACA report and what they put in the TMDL rule proposal.[19]

Probably the industry's biggest concern with TMDL rules proposal was that EPA actually proposed certain required elements of a TMDL and expanded that list of requirements to include an implementation plan. Not only did it require an implementation plan, but that implementation plan had to be a reasonable assurance standard, all of which EPA would ultimately have approval authority over for individual TMDLs.

The second set of proposed rules that came out the same day were changes to the MPDES program where the EPA proposed to reclassify virtually all forest activity so the point source of pollution would be subject to permitting under the MPDES program, primarily the storm water discharge permitting. That was really a shock to the forest industry. We had not expected that, and in our opinion it really overturned 28 years of agency interpretation of the Clean Water Act. So you might be asking yourselves how did we feel. We felt a lot like the black cat, that is how we felt. But how did it come out? Well, the final TMDL rule was issued in July of last

17. 64 Fed. Reg. 162, 46058-46089 (August 23, 1999).

18. U.S. Environmental Protection Agency, Report of the Federal Advisory Committee on the TMDL Program, EPA 100-R-98-006 (July 1998).

19. 64 Fed. Reg. 46012 (August 23, 1999) (proposed revision to 40 C.F.R. Part 130).

year.[20] There was very little changed from what the EPA proposed, and those rules have been put on hold by Congress for a time period, and presently – as Mr. Bloomquist mentioned – there have been some petitions filed on those proposed rules. Really, the forest industry's primary concern is with the rule's restatement that the nonpoint source is really captured under Section 303 and that an implementation plan is part of the TMDL. Hopefully those issues are going to be resolved here in the next few years.

Regarding the second part of EPA's proposed rules, they end up withdrawing a proposal to reclassify silviculture as a point source. You know, as an industry, we would like to take credit for that, but really it was a tremendous negative pressure on the part of small private forest landowners in the southeastern U.S. that really got the call to arms and let the EPA know what they thought of that proposal. There was a hearing in Arkansas where one small private landowner told the EPA something like, you are saying I need a permit to log on my own land? I got a permit. I got a deed. That was the perception of the folks down south and it ended up swaying the EPA.

So why are TMDLs a square peg for forestry and other nonpoints? Well, let's talk a little bit about point sources. It has been mentioned earlier that typically "end of the pipe" sorts of discharges are easy to identify. They are often the product of manufacturing, and the constituents are manufacturing related. In many cases, not always, but in many cases the loads for some of those constituents can greatly exceed background or natural levels. They are stationary and relatively easy to monitor.

Whereas nonpoint sources tend to be ill-defined and diffuse in their nature. Most of the nonpoint source constituents tend to also occur naturally, like sediment and nutrients. Maybe as a result of this, a lot of the nonpoint-related pollutants do not have numeric standards. They have narrative criteria. I'll touch on that again in a minute.

Relatively speaking, loads are relatively low from any given single source. Nonpoint sources may move across the landscape. In the case of a forestry operation, timber harvests may occur in various places over time, and impacts tend to diminish over time. Once the land has been disturbed, over a period of time vegetation regrows and the soil is stabilized and greatly reduced. In addition, hydrology strongly affects the pollutant, the irrigatability and runoff, for example.

Traditionally, TMDLs, as the name implies, are point source-related and it is relatively easy to come up with a daily load or relatively easy to come up with a daily load for wastewater discharge. Because daily loads do not work so well for something like nonpoint sources, which tend to

20. 65 Fed. Reg. 43586 (July 13, 2000).

have a lot of variability due to rainfall, and seasonal variability as well as interannular variabilities, the EPA has tried to kind of redefine or reexpress TMDLs to being almost anything that can fit nonpoint. Again, traditionally TMDLs are expressed as a daily load.

So in the proposed rule that I mentioned earlier, the EPA has broadened how a TMDL can be expressed in terms of the annual loads or maybe even an instream condition. So in an effort to try to make TMDLs work for nonpoint sources, EPA is trying to change the definitions and the rules.

Now I will talk about nonpoint sources and narrative standards. As I mentioned earlier, pollutants generated from nonpoint sources often have narrative criteria. For example, a narrative standard in Montana's water quality regulations states that, "there shall be no increases allowed above naturally occurring concentrations of sediment that are likely to create a nuisance or render the waters harmful to fish or wildlife and other beneficial uses."[21]

Now, why does Montana have such a squishy standard? Well, because there is a lot of variability in sediment. Sediment loads in streams vary greatly as a function of the geology, whether the stream is draining granitic landscapes or, maybe, low erosion volcanic soils. It makes a lot of difference in how much sediment there is in the stream. It makes a lot of difference on how steep the stream is. You are not going to find as much fine sediment in a stream that has a 10 percent gradient versus one that is very flat. All of these natural variables make it almost impossible to come up with one standard or even a number of standards that will reasonably capture the variability that is present even in natural systems.

So one of the things that might jump out at you is, well, what is naturally occurring? Well, fortunately the rules define what naturally occurring is for us. Naturally occurring means "the conditions or material present from runoff or percolation over which man has no control, or from developed land where all reasonable land, soil and water conservation practices have been applied."[22] Well, that is interesting. So that kind of implies that we can implement our BMPs or our nonpoint controls and, you know, however good the water quality is, given that implementation, that is the standard. However, it does not say BMPs, but it says "reasonable land, soil and water conservation practices" which are set at a level which protects streams and reasonably anticipated beneficial uses.

So you can see, it is a very circular way that the Montana water quality regulations are kind of framed up. The way the State tries to get around this is they implement their TMDL program and do their beneficial use assess-

21. *See* Mont. Admin. R. 17.30.621-629 (2001).

22. Mont. Admin. R. 17.30.60(17) (2001).

ments for these water bodies. Where there are narrative criteria to deal with, they take what is called a reference stream approach.

For example, they try to evaluate whether sediment levels are similar to a reference, or whether fishery levels are greater than 75 percent of a reference stream. The dilemma is that it is not well defined exactly how this reference stream approach works. Even though there is a requirement for sufficient and credible data,[23] it is still very subjective as to what is considered reference, and what the acceptable deviation is from reference. There is no bright ecological line as to what too much, too little, or just the right amount of sediment is. Too many fish, not enough fish – those questions are really more social than they are answerable by scientists. But the state is kind of struggling and doing their best to make these interpretations work.

The reality for the regulated community is that you are not really sure where the field goal uprights are, or whether you are necessarily going to hit them. We could come up with a management plan that reduces sediment levels, or we could implement our BMPs and the condition that will be present in the stream in terms of instream fine sediment. But how do we know whether that is close enough to reference? Well, what exactly is reference? It is a difficult question.

I'm not as concerned about TMDLs being promulgated today, but what happens five or ten years from now after we have implemented our management plan? Maybe the water quality has not changed all that much and is still not meeting some preconceived notion of what a reference condition is, implying what we have done is not good enough, when in fact, it is a pretty squishy system for knowing exactly what is in compliance.

Well, a place where we are trying to figure some of this out is in upper Lolo Creek, which is basically the land area above Lolo Hot Springs. So it is about a 45,000-acre land area. Its major tributaries include Granite Creek, the west fork of Lolo Creek, Wee Creek and the east fork of Lolo Creek.

So the participants in this TMDL or restoration planning process up until this point include: the Lolo National Forest, which manages 62 percent of the watershed; Plum Creek Timber, which has 37 percent; Montana DEQ; Montana Department of Transportation, because nine miles of Highway 12 goes right through the middle of this analysis area right up to Lolo Pass, and they are involved from a standpoint of highway sands getting in the stream; and the Missoula County Conservation District is also involved.

Lolo Creek is a pilot project. Well, there has really been a long history

23. Mont. Code Ann. § 75-5-702 (2001). "Sufficient credible data" is defined at Mont. Code Ann. § 75-5-103(30) (2001).

of concerns about this watershed from a sediment standpoint for probably 15 years, maybe 20 years. Western Montana has some of the most erodible soil. The kind at Lolo is an Idaho batholith, a granitic, very sandy, erodible soil. It is also a place where there is quite a bit of industrial forest landownership. It is also a major travel corridor and recreation area.

There has been a little bit of flux in terms of what the impairment status is. All of these Lolo Creek tributaries – well a number of them – were on the 1996 list. When DEQ did their sufficient and credible data analysis, they came off. But, as a part of this planning process, there will probably be some of them that end up going back on the list, and then a TMDL will be prepared for them.

The impairments include siltation or sedimentation, which is the pollutant for which the TMDL will be prepared. Some of the other impairments deal with habitat alterations, primarily some limitation on fish passage on stream culverts under roads. Because habitat alterations and fish passage barriers are not pollutants, it is my view that they really are not captured as part of the TMDL that would be submitted to EPA on this project. But we are planning on including a planning process for dealing with fish passage barriers as part of the overall restoration plan.

I might also point out that looking at Lolo Creek, probably a mile or so upstream of the hot springs, you can see some of the gravel bars and sand deposits in the stream. Keep this picture in mind.

Well, in the technical analyses that have been completed for the project so far, we have applied a kind of a field-based modeling approach to estimate road sediment contribution to streams. We have done an analysis of all of the primary culverts and modeled fish passages at those. We have estimated background erosion rates using a variety of different techniques. The Montana Department of Transportation funded a study to estimate loading from the highway sanding. We have a channel analysis, and we have fish and fish habitat surveys. So I think now the State would have sufficient and credible data.

Just very briefly, I'll discuss the results from the forest road sediment delivery – so it is just the forest roads. For all of Lolo Creek, the estimated delivery per year for that 71 square-mile area is about 178 tons per year from forest roads, which works out to about an average of 2.5 tons per square mile per year from forest roads. We have it partitioned by all of the major watersheds. You can see some watersheds are relatively low with less than 1, and some individual watersheds are maybe as high as 6.2, but the average is 2.5 tons.

How does that compare with what we think are to be the background erosion rates? Well, we have estimated using four different approaches, and there is a bit of variability using the various approaches, which is why

we chose a number of approaches. Using kind of a reference stream approach from one sub-basin in Granite Creek, the background erosion could be around 5 tons per square mile per year. Using soil creek estimates and other modeling procedures a background would be around 11 tons. Using a Forest Service land-type approach it is 17 tons. And based on the scientific literature of unmanaged watersheds in Idaho with granitic geology, it would be 28 tons.

So relative to background, the forest roads may be contributing another 10 to 30 percent above background. If all of the roads were brought up to meet BMP standards, we might be able to say, probably, 25 percent of background. Well, is that good enough? Is that too much sediment? Scientifically that is a very difficult question to answer. Fine sediment levels in Lolo Creek range from 5 to 35 percent. Depending on channel types, that is largely a function of how steep the channel is and how much stream flow it carries. Trout populations are very variable. Relative densities of trout range from less than one fish in 100 square meters to over five, again depending on channel type and the presence of exotic fish.

There is also a lot of significant year-to-year variability in runoff. That makes a big difference in how much sediment can accumulate in the stream before there is kind of a flush and flow that takes it out. During a dry period, there might have been increasing accumulation in the stream until, for instance, the 1972 and 1974 runoffs maybe cleaned things out a bit.

Quantification of the load has been relatively straightforward. That's not loading on a daily basis, but kind of a broad estimate of loading on an annual basis. For a long-term average, we are not exactly sure how close those numbers are, but they might be within a factor of two of the right answer, I would hope.

Coming up with a restoration plan in the drainage will probably be relatively easy. From Plum Creek's standpoint, we have an inventory of our roads and we know that we have some old, kind of, legacy road situations where we have some opportunity to reduce sediment delivery. It would be relatively easy for us to kind of frame up a plan to stick to those spots and rerun a sediment project and see how much loading was coming down. So a BMP-based restoration plan would be fairly simple to come up with.

One of the most difficult things that we are running into is that to be considered a TMDL, the EPA requires that the TMDL have quantified or numeric targets for an instream condition. So, essentially, what that is requiring us to do in Lolo Creek is translate Montana's narrative standard into what we would think would be an appropriate numeric standard. There is a lot of uncertainty as to really what the potential is at any given spot within that drainage.

The question again, is given imperfect knowledge of reference conditions, how do we proceed? Perhaps as John pointed out, the phased approach is appropriate. I guess we'll have to take our best stab at what we think the potential is and put all kinds of caveats in the TMDL documents acknowledging the uncertainty and see if we get there.

You can see in this photo taken along Lolo Creek in 1890 of a fishing party, this big sandbar that this woman is fishing on. So are things that much different than they were 100 years ago? There is probably more sediment in the streams. But again, what is the right amount?

Well, to encapsulate or conclude some of my thoughts, the forest industry strongly believes that Congress clearly differentiated between how point and nonpoint sources can be addressed. Section 319[24] of the Clean Water Act is very clear, very specific, and we do not believe that Section 303[25] was this big overarching umbrella program that captures nonpoint. It is very much supposed to be a state-driven process.

Montana's forestry program for meeting the goals of the Clean Water Act has a very successful track record over the last decade. Montana's forestry management program includes some regulatory and voluntary components. The blend has worked pretty well for forestry, I think.

The key to improvement has really been education. You know, the education has really created a buy-in at all levels. In talking to loggers and landowners about why to do this, the focus has been in stewardship and reducing sediment delivery, not because we have to meet a TMDL of 12 pounds. I have a concern that the second message, if that is the approach, would not generate nearly as much buy-in from landowners.

TMDLs, again, may be a logical framework for point sources, but they do not work well for nonpoint sources. Again, you end up having to translate the narrative standards in it to numeric standards, and it is very imprecise. And again, increased emphasis on TMDLs, I think personally, is going to detract from the real goal of good stewardship statewide.

Lastly, from more of a scientific perspective, I think we recognize the need to continue to validate our management system or BMPs. We have been expending a lot of resources over the last decade to improve our understanding of how effective our BMPs are.

Plum Creek is going to be doing a lot of this under a Native Fish Habitat Conservation Plan. A lot of the forest industry research is also going to be coordinated through the National Council for Air and Stream Improvement, which is an industry kind of research organization.

There are a lot of other folks in the state that are trying to validate the

24. 33 U.S.C. § 1329 (1994 & Supp. V 1999).

25. 33 U.S.C. § 1312 (1994).

BMP systems they have. I know the State is doing the same for its land, and the Forest Service has some research underway, too. Ultimately that is what we need to demonstrate.

Thank you.